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ENSAFE INC. ENVIRONMENTAL AND MANAGEMENT CONSULTANTS

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January 27, 2004

Commander
Attn: James Reed/18812JR
SOUTHNAVFACENGCOM
2155 Eagle Drive
P.O. Box 190010
North Charleston, SC 29419-9010

Subject: CTO-0094; NSA Mid-South, AOC A, Millington, Tennessee

Document Transmittal – *Responses to USEPA Comments on the Interim Measures Work Plan, Naval Support Activity Mid-South, AOC A – Northside Fluvial Deposits Groundwater, Revision 0*

Reference: Contract N62467-89-D-0318 (CLEAN II)

Dear Sir:

This letter is provided to document submittal of the *Responses to USEPA Comments on the Interim Measures Work Plan, Naval Support Activity Mid-South, AOC A – Northside Fluvial Deposits Groundwater, Revision 0*. The document has been distributed as shown on the attached NSA Mid-South RFI Distribution List.

If you have any questions or comments of a technical nature, please contact me at 901/372-7962. Comments or questions of a contractual nature should be directed to Scott Nye at 901/386-9344.

Sincerely,

EnSafe Inc.

By: John Stedman, Jr.
Task Order Manager

Enclosures: As Stated

cc: Contracts File: CTO-0094 (w/out enclosure)
Project File: 0094-34-000 (w/out enclosure)
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NSA MID-SOUTH AOC A
INTERIM MEASURES WORK PLAN (REV. 0)
RESPONSES TO USEPA COMMENTS
January 27, 2004

Comment # 1:
Spacing the injection wells 20 feet apart seems excessive since the pilot study and the analytical model recommended a 40 foot spacing. It is assumed the close spacing is to ensure sufficient saturation along the injection well transect. However, the analytical model assumption was conservative – 50 gallons of injectate every 6 months compared to the proposed amount of injectate – 100 gallons every month. Given the higher volume and frequency for injecting sodium acetate, a 20 foot spacing may be too close. The dye tracer study is a good suggestion to confirm groundwater velocity and determine optimal locations for injection wells. Will dye trace results be used for determining Phase I injection well location? Will the analytical model be re-run with results from the dye tracer test?

Response
We concur with your observation of being overly conservative with substrate injection well spacing. Our current spacing of 20 feet incorporates a safety factor of 2, which may be superfluous considering that our analytical model is already based on a conservative substrate injection strategy. Based on your comments and our review, the injection wells will now be spaced at 30-foot centers, thereby using a safety factor of 1.5.

The dye tracer study will not be used for determining Phase I injection well locations. Location of the current transects are based on the results of the pilot study, existing TCE concentrations, and estimated groundwater flow from previous pump tests in the area. The dye tracer study is intended to: (i) confirm earlier groundwater velocities from pump tests in the area; (ii) provide information on dispersion, and confirm values obtained from the analytical model by performing a re-run with modified default values and a sensitivity analysis, and (iii) assist in the location of Phase II injection wells, if required.

Comment # 2
Figure 6-1. A proposed monitoring well is located adjacent to 7G57LF. Groundwater data collected so close to 7G57LF may only duplicate results. Moving the proposed well downgradient about 20 to 30 feet could provide additional degradation information.

Response
We agree that the two proposed monitoring wells, i.e., existing well 7G57LF and the new well could provide similar (redundant) chemical and geochemical detail if they are too close to each other. However, we would like to retain these two wells along the same transect, spaced approximately 30 feet apart. This will provide information on dispersive and other heterogenic and hydrogeological variations in the fluvial deposits.

Comment # 3
Monitoring well 7G21LF is located within the higher concentrations of the plume. This well should be monitored to determine effectiveness of the remedy in this area of the plume, especially since this well represents the eastern extent of sub-plume 'A' or potentially the western extent of sub-plume 'B'.

Response
This well was inadvertently omitted from Table 6-1. It will be included in quarterly effectiveness monitoring.

Comment # 4
One other well that should be monitored is 7G31LF. This well represents the leading edge of plume A before concentrations disperse and migrate towards the boundary. Data from this well will indicate the extent of the effectiveness of the remedy over time.

Response
In addition to the quarterly effectiveness monitoring, annual long-term groundwater monitoring will continue. Well 7G31LF is included the annual long-term groundwater monitoring and will be used to assess the extent of the effectiveness of the remedy over time.

Comment # 5
The text is clear that the number and location of injection wells will be modified per indication of effectiveness from the monitoring wells. In addition, monitoring well locations may need to be modified over time as the concentrations/configuration of the plume changes, i.e. as chlorinated solvents degrade and DCE and potentially vinyl chloride concentrations increase downgradient of current monitoring well locations.

Response
We strongly concur. The pilot study results, analytical model and tracer study were used to identify monitoring requirements. However, we understand that the progress of remediation should ultimately dictate modifications, if required, in our monitoring well strategy.

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